THE TECHNOLOGY CONUNDRUM

IN HIGHER EDUCATION

Briefing Prepared for

California Postsecondary Education Commission

Kenneth C. Green
The Campus Computing Project
www.campuscomputing.net

31 July 2001

Overview

◆ Context: *Great Aspirations*

◆ *Campus Computing:* National Data
on IT Issues

◆ Campus Planning and Policy Issues

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Great Aspirations

Both the processing and the uses of information are undergoing an unprecedented technological revolution. Not only are machines now able to deal with many kinds of information at high speed and in large quantities, but it is also possible to manipulate these quantities so as to benefit from them in new ways. This is perhaps nowhere truer than in the field of education. One can predict that in a few years, millions of schoolchildren will have access to what Philip of Macedon's son Alexander enjoyed as a royal prerogative: the services of a tutor as well-informed and as responsive as Aristotle.

Patrick Suppes
Scientific American
October, 1966

Great Expectations

- ◆ Film

- ◆ Television

- ◆ Mainframe Computers

- ◆ Microcomputers

- ◆ Courseware

- ◆ Internet / Web

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Déjà Vu?

For better or worse, television dominates much of American life and manners….Part of [the] lackluster record of the educational uses of television is of course due to the heretofore merciless economies of the medium. But profound pedagogic mistrust of the medium also remains a fact of life. The proof of the pudding lies in the fact that on many campuses, fancy television equipment…now lies idle and often unused…. Academic indifference to this enormously powerful medium becomes doubly incomprehensible when one remembers that the present college generation is also the first television generation.

George Bonham
Television: The Unfulfilled Promise
Change, **1972**

An Accidental Revolution (Gillespie, 1980)

◆ Unplanned

◆ Unprepared

◆ Unanticipated

What has changed in 20 years?

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Convergence @ Y2K
When Wishes Come True

- ◆ Access

- ◆ Lifelong Learning

- ◆ Information Technology

Compelling, Competing and Complementary
Visions of Higher Education

- ◆ *High Touch:* Mark Hopkins and the log

- ◆ *High Tech:* IT saves education

- ◆ *Hybrid:* the individual footpath

Source: Green, 1999

IT and the Instructional Mission

CONTENT	*CONTEXT*	*CERTIFICATION*
• Information	• Time & Place	• Course
• Structure	• Campus	• Sequencing
• Value	• Learning Environment	• Program
• Application	• Resources	• Degree
• Skills	• Access	• Skills
• Materials	• Socialization	• Licensing
		• Outcomes

Source: Green, 1999

The Impact of Technology

◆ Content

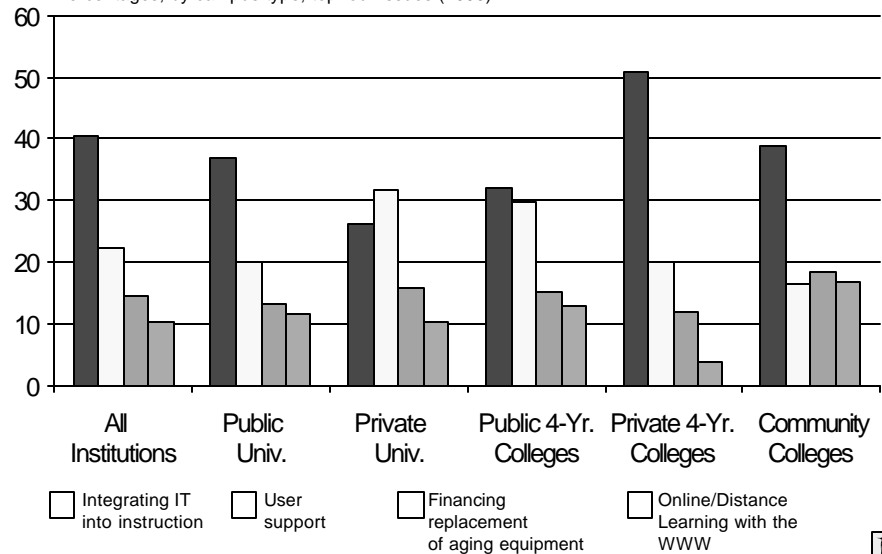◆ Distribution

◆ Infrastructure

◆ Outcomes

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NATIONAL DATA

THE CAMPUS
COMPUTING PROJECT

Single Most Important IT Issue

Percentages, by campus type; top four issues (2000)

Legend:
- Integrating IT into instruction
- User support
- Financing replacement of aging equipment
- Online/Distance Learning with the WWW

Categories: All Institutions, Public Univ., Private Univ., Public 4-Yr. Colleges, Private 4-Yr. Colleges, Community Colleges

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Strategic IT Issues, Fall 2000

Means by sector; scale: 1=not important 7=very important

Public Univ. | Private Univ. | Public 4-Yr. College | Private 4-Yr. Colleges | Community Colleges

☐ Developing a Campus Portal ☐ Moving User Support to The Web ☐ Developing Budget Model ☐ Using Internet/ Web in Instruction ☐ eCommerce
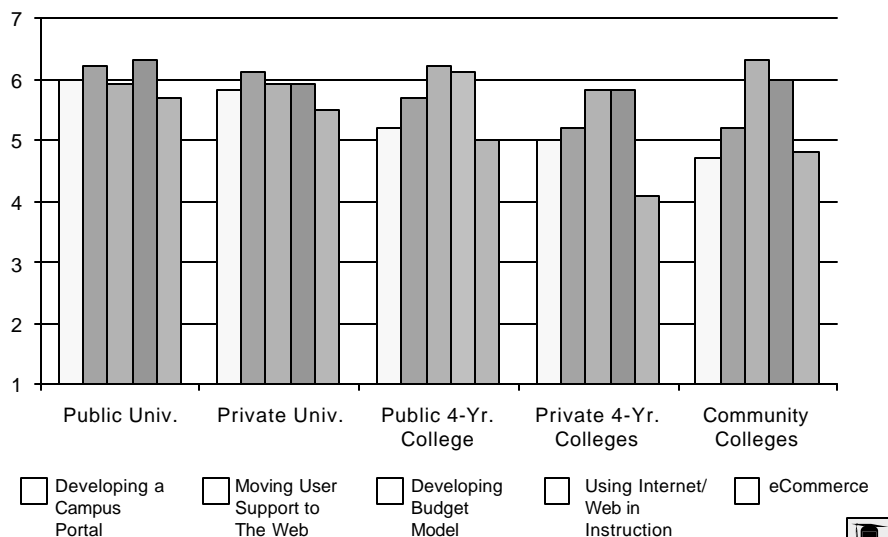
FTE User Support Ratios

Ratio of Headcount Student Enrollment to FTE IT Support Staff

Public Univ. | Private Univ. | Public 4-Yr. College | Private 4-Yr. Colleges | Community Colleges

☐ 1999 ☐ 2000
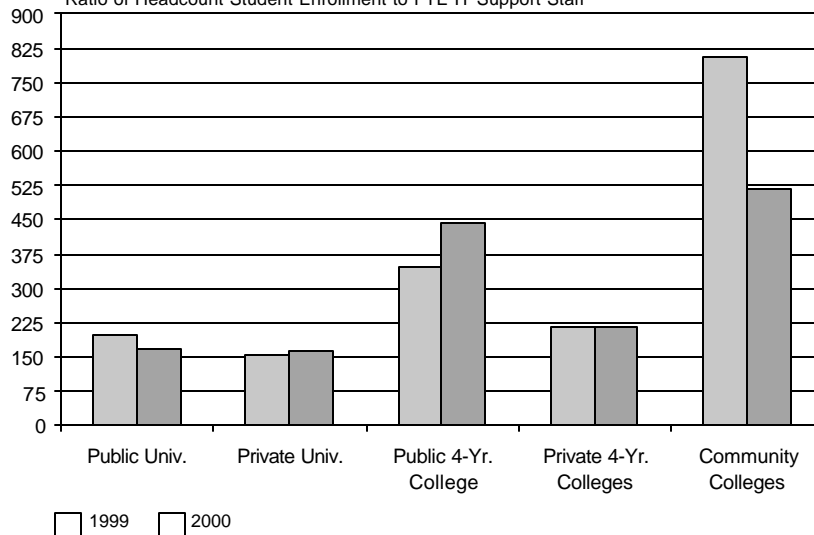
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What's Wired?

Percentages, by campus type

Faculty Offices	Classrooms
Dorm Beds	Classrooms with Projection Capacity

(Categories: Public Univ., Private Univ., Public 4-Yr. College, Private 4-Yr. Colleges, Community Colleges)

Rising Use of IT in Instruction

Percentage of college courses using IT resources

(Categories: E-Mail, Internet Resources, Course WWW Pages, Computer Simulations, Presentation Handouts)

1994   1995   1996   1997   1998   1999   2000

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Rising Use of IT in Instruction
Electronic Mail

Percentages by sector, 1994-2000

Bar chart showing percentages for Public Univ., Private Univ., Public 4-Yr. College, Private 4-Yr. Colleges, and Community Colleges for years 1994, 1995, 1996, 1997, 1998, 1999, 2000.
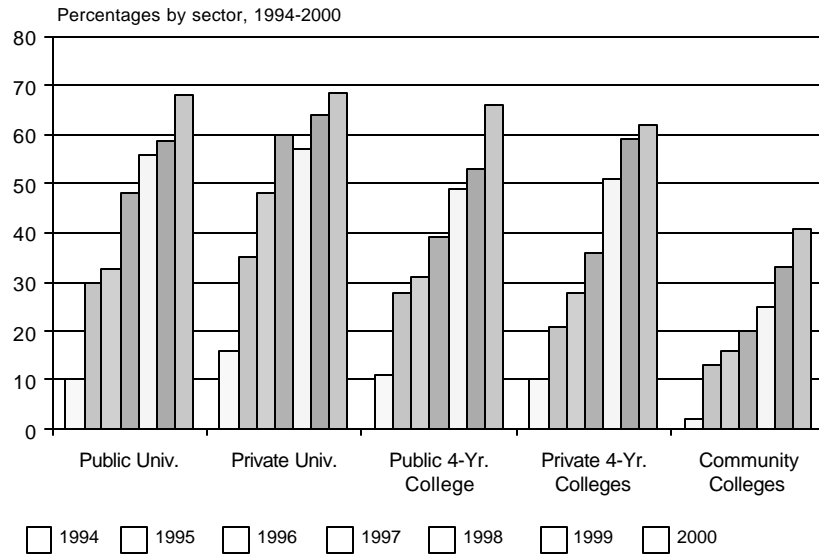
Rising Use of IT in Instruction
WWW Pages for College Courses
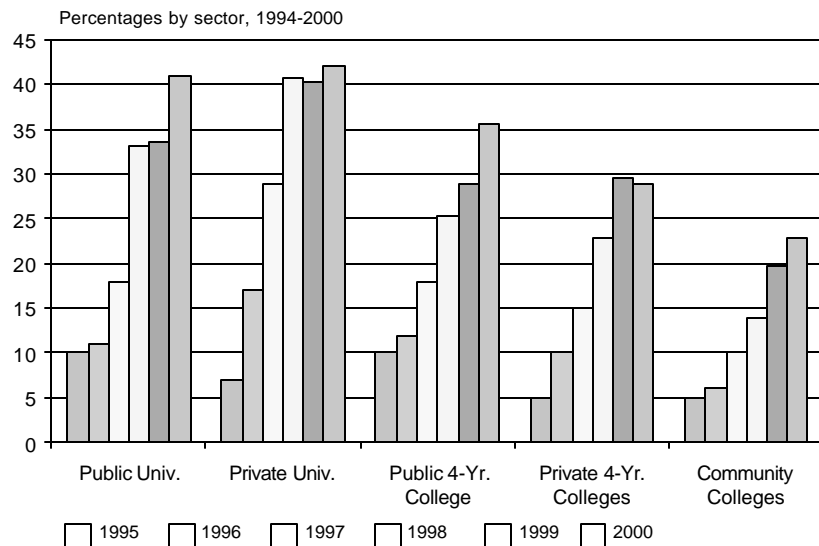
Percentages by sector, 1994-2000

Bar chart showing percentages for Public Univ., Private Univ., Public 4-Yr. College, Private 4-Yr. Colleges, and Community Colleges for years 1995, 1996, 1997, 1998, 1999, 2000.

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Web Site Services

percentages	Public University	Private University	Public 4-Yr. College	Pvt. 4-Yr. College	Comm. College
Ugrad Application	92.3	81.0	78.6	78.1	58.3
Financial Aid Application	78.3	76.2	46.8	35.4	45.4
Journals & Reference	90.8	85.7	82.5	72.5	53.7
Course Reserves	67.7	66.6	38.1	32.6	13.0
Course Registration	78.5	71.4	55.6	29.2	27.8
IT Training & Tutotials	69.2	85.7	62.7	42.1	24.1
E-Commerce Capacity	40.0	33.3	18.3	12.4	14.8

Off-Campus Dial-Up
ISP Services for Students
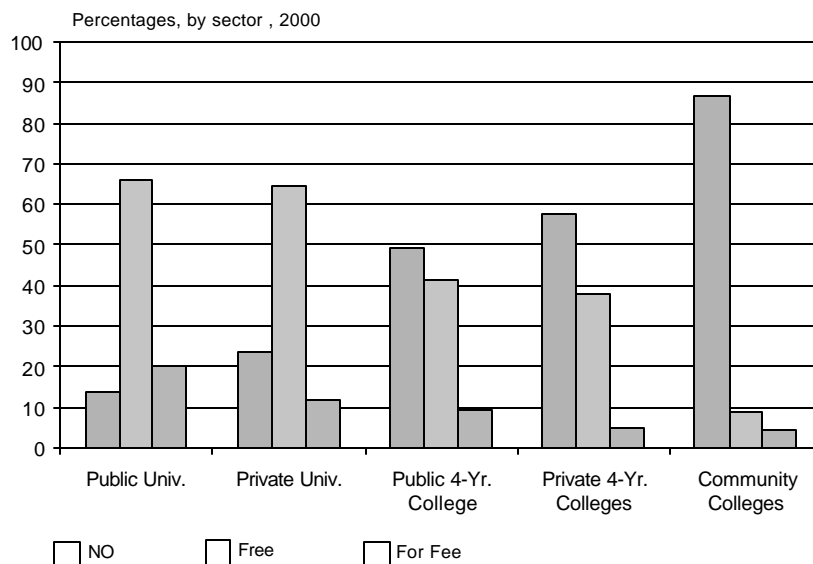
Percentages, by sector , 2000

NO   Free   For Fee

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Strategic and Financial Planning, 2000

Percentages by sector, 2000

Legend: Strategic Plan | Financial Plan | E-Commerce Plan | Portal Plan | Distance Education

Sectors: Public Univ. | Private Univ. | Public 4-Yr. College | Private 4-Yr. Colleges | Community Colleges
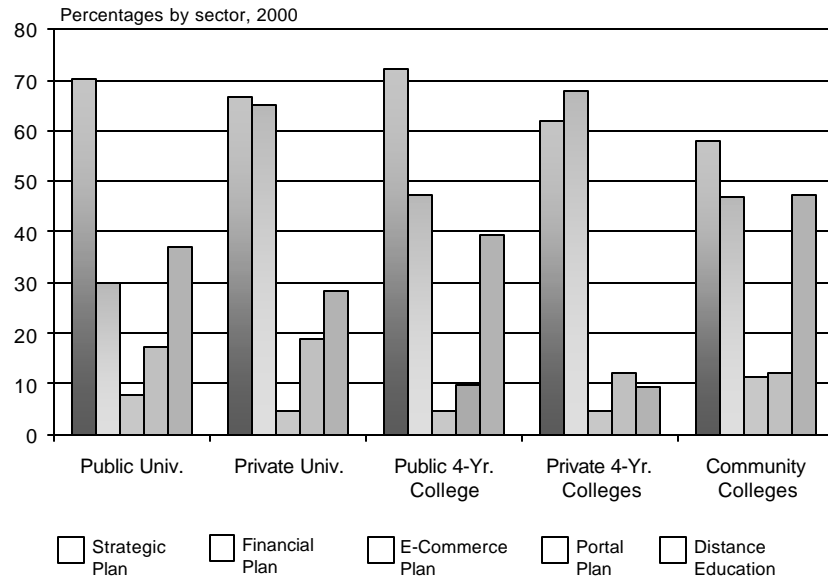
Rating the Campus Infrastructure
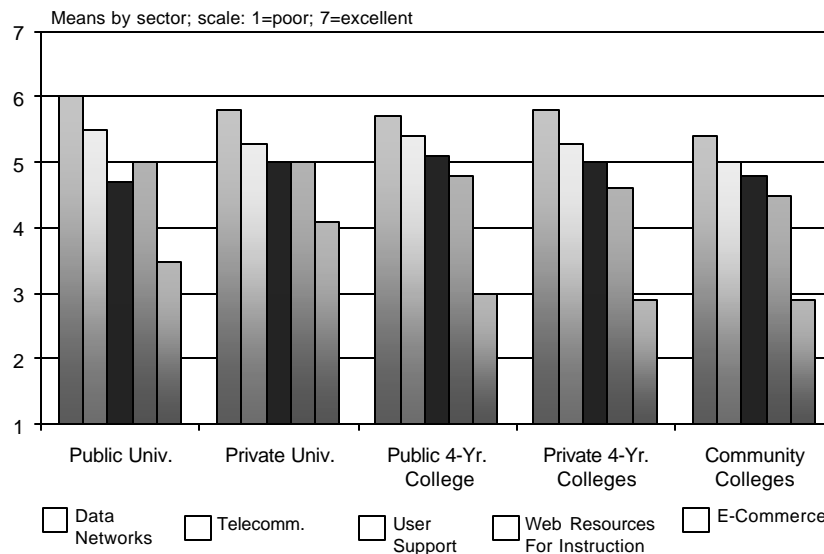
Means by sector; scale: 1=poor; 7=excellent

Legend: Data Networks | Telecomm. | User Support | Web Resources For Instruction | E-Commerce

Sectors: Public Univ. | Private Univ. | Public 4-Yr. College | Private 4-Yr. Colleges | Community Colleges

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Intellectual Property Issues

Percentages, 2000

[Bar chart showing percentages across five institution types with three categories each:

Public Univ.: ~95, ~94, ~62
Private Univ.: ~95, ~95, ~52
Public 4-Yr. College: ~93, ~84, ~43
Private 4-Yr. Colleges: ~94, ~82, ~20
Community Colleges: ~77, ~71, ~39

Legend:
☐ E-mail/Web Code of Conduct
☐ Policy on Software Piracy/Duplication
☐ Ownership of Course Content on the Web]
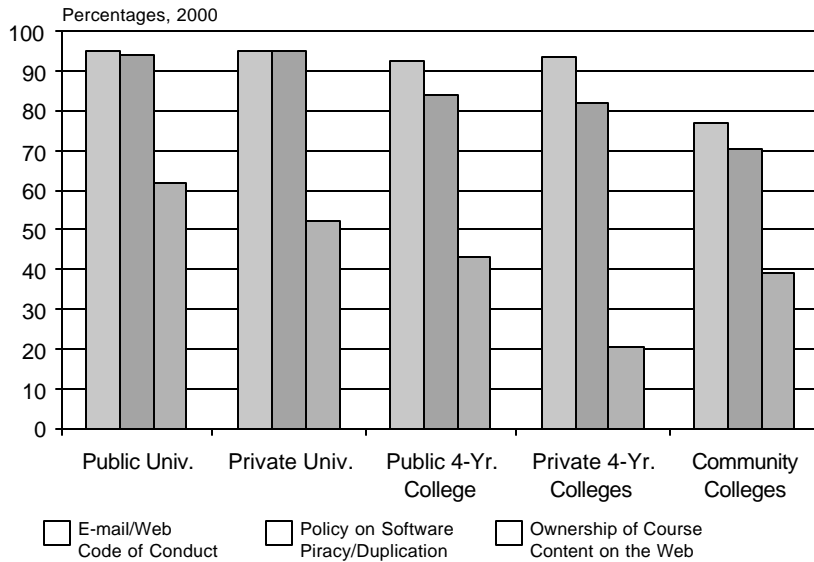
Faculty Support and Recognition
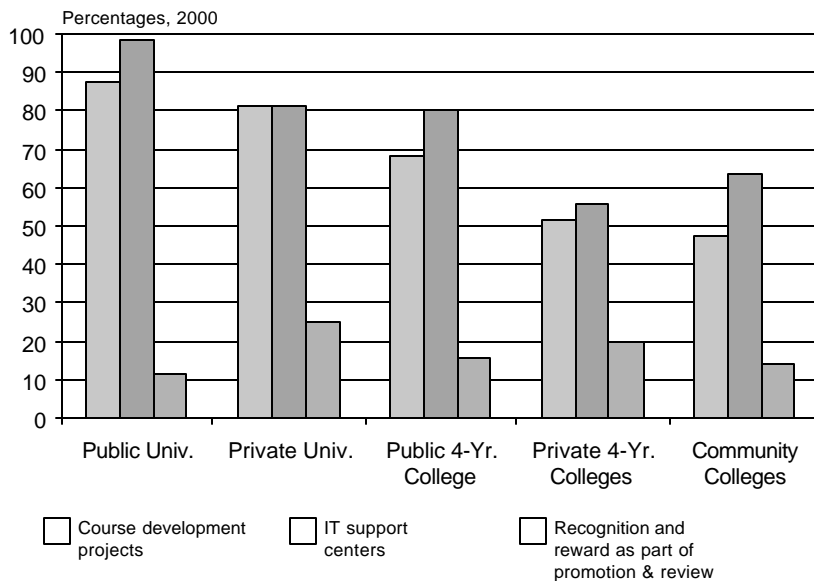
Percentages, 2000

[Bar chart showing percentages across five institution types with three categories each:

Public Univ.: ~87, ~98, ~11
Private Univ.: ~81, ~81, ~25
Public 4-Yr. College: ~68, ~80, ~16
Private 4-Yr. Colleges: ~51, ~56, ~20
Community Colleges: ~47, ~64, ~14

Legend:
☐ Course development projects
☐ IT support centers
☐ Recognition and reward as part of promotion & review]

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PLANNING AND

POLICY ISSUES

Myths and Misunderstandings

◆ Clicks replace bricks

◆ Content is king

◆ Technology fosters instructional and institutional productivity

◆ Distance learning is easy, inexpensive and profitable

Continuing Challenges

◆ Instructional integration & user support

◆ Assessment

◆ IT access and ISP services

◆ Reward and recognition

◆ Infrastructure: strategic & financial planning

◆ Multiple dimensions of the "digital divide"

◆ Unbundled educational offerings

Issues Seeking Resolution

◆ Exploding demand for distance and distributed learning

◆ New providers and competitors

◆ Angry consumers, parents & corporate sponsors

◆ eCommerce & eService

◆ Assessment and outcomes

Faculty Visualization

◆ *Institutional Vision:* <u>we</u> will do this.

◆ *Individual Visualization:* I can do this!

◆ Infrastructure fosters innovation

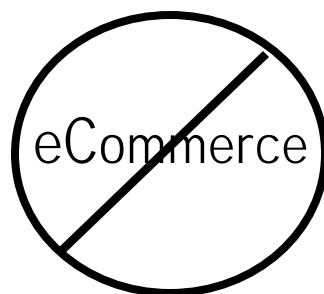# The Productivity Conundrum

◆ Quantity

◆ Quality

◆ Who Decides?

The Distance Learning Conundrum

◆ Mission & mandates vs. markets

◆ Unbundled services

◆ Overhead and development costs

◆ "Appropriate" technology

◆ Infrastructure

◆ Reimbursement vs. revenue and profits?

Change the Focus

eCommerce

eService

Assessment

◆ Benign neglect

◆ Ambiguous research

◆ Incomplete data

◆ Double standards

State Policy & Planning Issues

◆ Mission and mandates

◆ Access

◆ Infrastructure

◆ Sustained funding

◆ Cartel development & mgmt.

◆ Institutional subsidy & reimbursement

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Technology Triage

◆ Needs

◆ Objectives

◆ Goals

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PO Box 261242 s Encino, CA s 91426-1242
Tel: 818.990.221 s Fax: 818.784.8008

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